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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,987	09/27/2001	Byron G. Scott	H0001705	5157

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EXAMINER	
VORTMAN, ANATOLY	
ART UNIT	PAPER NUMBER
2835	

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/965,987	SCOTT ET AL.	
	Examiner	Art Unit	
	Anatoly Vortman	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42,44 and 45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *25-42,44 and 45* is/are allowed.

6)☒ Claim(s) *1-13,16-19,23 and 24* is/are rejected.

7)☒ Claim(s) *14,15 and 20-22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by US/4,037,316 to Stoll.

Stoll disclosed (Fig. 4) a device, comprising: a switch housing (41, 43); at least four terminals (23, 25, 29, 33) that are mutually electrically isolated from the housing (41, 57) (since said housing is made of the insulative material); a first two (29, 33) of the at least four terminals being shorted together when electrical contacts (97, 99) mounted on the two terminals (29, 33) of a positive action thermal switch (13, 35, 37, 97, 99) are closed (by disk (13)); and an integral electrical temperature sensor (17) being electrically coupled between a second different two of the electrically isolated terminals (23, 25).

3. Claims 1-5 and 8-11, are rejected under 35 U.S.C. 102(b) as being anticipated by US/4,306,210 to Saur.

Regarding claim 1, Saur disclosed (Fig. 3, 4) a device comprising: a switch housing (8), at least two terminals (9' and 9"; 9' and 1; or 9" and 1) that are both mutually electrically isolated and electrically isolated from the housing (8) (since housing (8) is made of insulating

material (column 2, line 55)), a positive action thermal switch (16, 26, 27) being electrically coupled to at least two of the mutually electrically isolated terminals (1, 9') and being electrically isolated from the housing (8); and an integral electrical temperature sensor (31) being electrically coupled to at least two of the mutually electrically isolated terminals (1, 9") and being electrically isolated from the housing (8), the integral electrical temperature sensor (31) sharing one (1) of the two mutually electrically isolated terminals in common with the positive action thermal switch (16, 26, 27).

Regarding claim 2, Saur disclosed that said switch is a snap-action thermal switch (column 4, lines 25+).

Regarding claims 3 and 4, Saur disclosed that a pair of terminals (1, 9") are mutually electrically isolated when the snap-action thermal switch (16, 26, 27) is open and the integral electrical temperature sensor (31) is electrically coupled to provide an output on said pair of electrically isolated terminals and said terminals (1, 9') are shorted when said switch is closed upon sensing an ambient temperature that is higher than a predetermined set point of the snap-action thermal switch (column 3, lines 28+).

Regarding claim 5, Saur disclosed that said temperature sensor (31) is mounted on an interior surface of the snap-action thermal switch (Fig. 3).

Regarding claim 8, Saur disclosed that the snap-action thermal switch is structured having three terminals (1, 9', 9") being mutually electrically isolated, two (1, 9') of the three terminals being shorted together when electrical contacts (16, 27) mounted on the two terminals are closed upon sensing an ambient temperature that is higher than a predetermined set point of the snap-action thermal switch (column 3, lines 28+), wherein one (1) of said terminals is shared

by one terminal of the integral temperature sensor (31) ; and the integral electrical temperature sensor (31) is electrically coupled to provide an output on a third one (9") of the electrically isolated terminals.

Regarding claim 9, Saur disclosed that a first one (1) of the two terminals (1, 9') is structured for being coupled to a voltage source (35) and a second one (9') is structured for being coupled to a load (II); and the integral electrical temperature sensor (31) includes one terminal electrically coupled to the first one (1) of the two terminals that is structured for being coupled to a voltage source (35) and a second terminal coupled (via contact ring 32, 33) to the third one (9") of the electrically isolated terminals.

Regarding claims 10 and 11, Saur disclosed that said temperature sensor (31) is resistance thermal device (RTD) or a silicon transducer (column 3, lines 44+).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 13, 16-19, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US/4,037,316 to Stoll.

Regarding claims 13 and 23, Stoll disclosed (Fig. 4) a two-terminal snap action thermal switch (13, 35, 37, 97, 99) having a thermally activated snap-action portion (13) that is electrically coupled between two mutually electrically isolated terminals (29, 33) that are both electrically isolated from a housing (41) containing the snap-action portion (13); and an electrical temperature sensor (17) that is both thermally (column 3, lines 55+) and electrically (Fig. 1-3) coupled to the snap-action thermal switch (13, 35, 37, 97, 99), said sensor (17) being coupled to the third (23) and forth (24) terminals, but *did not* disclose that said snap-action thermal switch is normally open.

It would have been obvious to a person of ordinary skill in the thermal switch art at the time the invention was made to structure said snap action thermal switch in a normally open configuration in order to adapt the protection device for a particular application requiring a normally open contact, since such a modification would have involved a mere reversal of the snap-action portion (13) of Stoll. It had been well settled that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167.

Regarding claims 16-19, Stoll disclosed that the snap-action thermal switch is structured having three terminals (29, 33, 25) being mutually electrically isolated, two (29, 33) of the three terminals (29, 33, 25) being shorted together when electrical contacts (97, 99) mounted on the two terminals (29, 33) are closed upon sensing an ambient temperature that is higher than a predetermined set point of the snap-action thermal switch, wherein one (33) of said terminals is shared (Fig. 3) by one terminal (23) of the integral temperature sensor (17) ; and the integral electrical temperature sensor (17) is electrically coupled to provide an output on a third one (25) of the electrically isolated terminals (29, 33, 25).

Regarding claim 24, Stoll disclosed a fifth terminal (31) that is coupled to the first terminal (23) of the temperature sensor (17) (Fig. 2).

6. Claims 6 and 7, are rejected under 35 U.S.C. 103(a) as being unpatentable over Saur in view of US/5,422,788 to Heinen et al., (Heinen).

Regarding claims 6 and 7, Saur disclosed all of the claims limitations as apply to claims 1, 3, and 5 above, but failed to disclose that a thermally conductive epoxy bonding agent is disposed between said temperature sensor (31) and the surface of the thermal switch.

Heinen disclosed (Fig. 1) an electrical device, wherein a heat generating component (11, 13) is adhesively bonded to a heat sink (15) by a thermally conductive epoxy (17) in order to augment the thermal coupling between said component (11) and said heatsink (15), and to enhance the integrity of the device (column 1, lines 65+ and column 2, lines 1+).

Since the inventions of Saur and of Heinen are, in part, directed to the same problem, (i.e. providing adequate thermal coupling between two distinct components of the device), the purpose of the thermally conductive bonding agent used in the device of Heinen would be recognized in the invention of Saur.

It would have been obvious to a person of ordinary skill in the arts of thermal conduction and heat exchange at the time the invention was made to dispose the heat conductive epoxy bonding agent as taught by Heinen between the surface of the switch and the electrical temperature sensor (31) in the device of Saur, in order to augment thermal coupling between said switch and said sensor and to enhance the integrity of the device.

Allowable Subject Matter

7. Claims 25-42, 44, and 45 are allowed.

8. Claims 14, 15, and 20-22, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

reasons for allowance of claims 25-31 and 36-41 have been presented in paragraph 10 of the Non-Final Office Action (paper # 5).

Regarding claims 14 and 15, the claims recite that "temperature sensor is mounted on an interior (exterior) surface of the snap-action thermal switch".

Regarding claims 20-22, claim 20 recites "the shared one of the two isolated terminals...coupled to a voltage source, a second one...coupled to a load, and the output of the integral electrical temperature sensor is coupled to the third electrical terminal".

Regarding claims 32-35, claim 32 recites: "an upright tubular spacer projecting from the header and surrounding the first and second contacts and the portions of the first and second terminals adjacent contacts".

Regarding claims 42, 44, and 45, claim 42 recites: "outputting on at least one common terminal with the first circuit a second signal representative of the sensed set point temperature".

The aforementioned limitations in combination with remaining limitations of the respective claims are believed to render the claims patentable over the art of record.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anatoly Vortman whose telephone number is 703-308-7824. The examiner can normally be reached on Monday-Friday, between 9:30am and 6:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg can be reached on 703-308-4815. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Anatoly Vortman
Primary Examiner
Art Unit 2835

A.V.